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the socio-economic consequences of expanding pearl production to promote economic development.

AN OVERVIEW OF PEARL PRODUCTION TECHNIQUES IN AUSTRALIA. David (Dos) O'Sullivan[1] and **Derek Cropp.[1,2]** [1]Key Centre for Teaching and Research in Aquaculture, University of Tasmania at Launceston, PO Box 1214, Launceston, Tasmania, 7250, Australia. Tel: +61 03 243-448, Fax: +61 03, 243–449 [2]Aquatech Australia Pty Ltd and Abalone Pearls Pty Ltd, 15 Wignall St, North Hobart, Tasmania 7000, Australia. Tel: +61 02 349-337, fax: +61 02 311-627.

The pearl culture industry in Australia has been operating since the mid 1950s. The main production comes from the northwestern coast of Western Australia, although production is increasing in the Northern Territory and north Queensland, especially in the Torres Strait region. Shell are harvested at licensed collecting areas under a quota system to prevent overfishing of the stocks. Seeding is undertaken at the harvesting leases or on the farms.

On almost all the farms, the seeded pearl shells are held in specially designed net panels, each with about 6 or 8 mesh pockets in which to hold the shell. Farms are moving away from the traditional raft culture into the use of surface longlines or bottom fences, mainly as a preventative measure to avoid losses from cyclones. The shells are regularly cleaned using high-pressure water and are X-rayed after 6–8 months to check for the presence of the nucleus.

Harvesting of the pearls takes place about 2 years after implantation and some shells may be reseeded up to 3–4 times before being used for mabe production. With the advent of hatchery production of juveniles, technology is being developed for nursery culture and subsequent growout of these small shell until they reach a seedable size (1–2 years old).

STATUS AND POTENTIAL OF PEARL FISHERY OF BANGLADESH. Manamatha Nath Sarker, Marine Fisheries Survey, Management & Development Project, Cox's Basar, Bangladesh.

Bangladesh is famous for her natural pink pearl. These are obtained from the freshwater mussels, like *Lamellidens spp*. and *Ferreysia spp*. Another kind of small white pearls is obtained from marine windowpane oyster (*Placuna placenta*). Pearl oyster (*Pinctada fucata*) is reported to be available, but there is no information on collecting pearls from them. The species of *L. marginalis* reaches up to 10 cm and produces pink coloured pearls, whereas *P. daccaensis* grows up to 6 cm and produces golden coloured pearls. *L. marginalis* is abundant in almost all freshwater bodies of Bangladesh, particularly in lowland areas where water is available throughout the year. The main area of distribution comprises the greater district of Sylhet, Dhaks and Mynensingh. The natural pearls collected annually are estimated to be 150 kg, with negligible amount from farming. Mussel meats are used for poultry feed, while the shells are mostly used for producing shell craft and lime. Some shells are also used as a mineral source for poultry feeds. Although there is a great potential for pearl culture in both freshwater and marine water bodies, pearl culture has not yet flourished commercially in the country, due to lack of technical know how and financial constraints.

BREEDING CYCLE OF PEARL OYSTERS *PINCTADA MAZATLANICA* AND *PTERIA STERNA* IN BAHIA DE LA PAZ, SOUTH BAJA CALIFORNIA, MEXICO. Pedro Saucedo[1] and **Mario Monteforte,[2]** [1]Boursar PIFI of CICIMAR-IPN, [2]Grantee International Foundation for Science, Centro de Investigaciones Biológicas del Noroeste, P.O. Box 128, La Paz, B.C.S. 23000, México. FAX (112)5.36.25.

This study intends to increase our knowledge of the reproductive biology of the mother-of-pearl *Pinctada mazatlanica* and the rainbow mabe *Pteria sterna* from Bahia de La Paz. It is aimed at completing the spat collection strategies and enhance nucleus implanting operations for the production of cultivated pearls.

Between June 1992 and July 1993, gonad samples of cultured individuals of both species were collected monthly (10 individuals of each specie) and preserved in 10% formalin. They were then embedded in parafin, sectioned at 7 μm, colored with hematoxylin-eosin and observed at 10 and 40× magnifications. The reproductive cycle was studied by dividing it into five main gonadal stages: 1) indeterminate, 2) gametogenesis, 3) maturity, 4) spawning and 5) spent. The histological observations were supported by a gonadic index.

The sample size might seem rather small for the purpose of histologic studies. However, since this work was carried out using cultured individuals, and not many were available for being sacrificed, we had two options to choose from: either we increased sample size covering only a restrained temporal period, or we used smaller samples but we could cover an annual cycle. We decided for the second alternative which we believe to be richer in information.

In both species, gametogenesis was a continuous process through the year. *P. mazatlanica* bred once a year between August and September (summer), when water temperatures reached 28 to 30°C. It is a protandrous hermaphrodite which matured as female at a shell height greater than 100 mm (approximately 22 to 24 months old). Below this size, all organisms were males. Because we used young-adult organisms in this study, the sex-ratio we found was 0.12:1. Finally, the first gonad maturity was observed at a shell height of 50–55 mm (11 to 13 months old).

The breeding season for *P. sterna* was bimodal with two spawnings in the year, the main one in January–February (winter) when the water temperature was about 20 to 22°C, and another short one in May (spring) at 23 to 25°C. There was not enough evidence to conclude the species to be a protandrous hemaphrodite, but the highest proportion of females was found over 55 mm of shell height (older than 10 to 11 months). The sex-ratio also tended to male at young stages (0.38:1). The first gonad maturity